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Acceptance or challenge? Psychological treatments for depressive symptoms in patients with diabetes

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CHAPTER 1

General Introduction

*"At the beginning of every day
And at the end of every day
Every few hours throughout the day
Even in the middle of the night
Diabetes is there [...]"*

*You can't just forget about it
Because if you do... things will get worse
But if you don't try to forget about it sometimes
It takes over your life"*
(Hannan, 2005)

Diabetes can be very tough on individuals' lives. On a daily basis, patients have to deal with this disease by adhering to strict diet and exercise regimens, taking medication, and, using a needle, penetrating their skin several times a day. Dramatic, but not surprising, is the fact that about one third of all patients also suffer from depressed mood. A cure for diabetes has not been found yet; therefore it is even more important to help patients increase their quality of life and well-being by reducing their depressive symptoms. Two potentially effective psychological treatments for depressive symptoms are Cognitive Behavior Therapy (CBT) and Mindfulness-Based Cognitive Therapy (MBCT). In this thesis, the effects of (individually delivered) CBT and MBCT will be explored in patients with diabetes and comorbid depressive symptoms.

Diabetes mellitus: a burden of disease

Worldwide, chronic somatic diseases are the major cause of death and disability, accounting for 70% of all death rates (WHO, 2013). Diabetes mellitus is one of the most common chronic diseases. Often described as an epidemic, its prevalence increases steadily (Rowley & Bezold, 2012). At the moment, about 8% of all individuals in the Netherlands suffer from this disease (Baan et al., 2009). Due to demographic aging, urbanization, and change in lifestyle, the number of individuals with diabetes will more than double during the first third of the 21st century (King et al., 1998; Wild et al., 2004). In 2030, diabetes will be the 7th leading cause of death (WHO, 2013).

Diabetes is a metabolic disease which occurs when the pancreas produces insufficient amounts of insulin or when the body cannot effectively use it. Insulin is a hormone that regulates blood glucose by transporting sugar from the bloodstream into the individual cells. The cells of our bodies need glucose as a source of energy. In healthy individuals, the pancreas produces automatically the right amount of insulin to enable cells to absorb glucose that the body receives from nutrition. In people with diabetes, this process is interrupted leading to heightened glucose levels in the blood (WHO, 2013). Blood glucose monitoring and management are therefore important

parts of patients' treatment. Yet, adhering to treatment can be challenging and many patients have poor glycemic control as indicated by high glycated haemoglobin (HbA1c) levels (Koro et al., 2004; Peyrot et al., 2005). Poor glycemic control places patients at greater risk of developing long-term complications as neuropathy, nephropathy, and retinopathy. Improving diabetes patients' self-management ability and subsequent glycemic control may help postpone the development of such diabetes complications (Matthews, 1999; Writing Team for the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications Research Group, 2003).

Two types of diabetes are mainly distinguished. In type 1 diabetes, the pancreas does not produce enough insulin. Patients with type 1 diabetes need to take supplemental insulin in form of injections, several times a day. In type 2 diabetes, the most common form of diabetes affecting approximately 90% of the patients, often cells do not respond properly to the insulin that is produced. This form of diabetes can be treated with healthy diet, regular exercise, and if necessary oral medication or insulin. In addition, there are new agents available, namely DPP-4 inhibitors and GLP-1 agonists.

In conclusion, diabetes is a complex and severe disease that gently interferes with patients' daily lives. In addition to the medical burden of this disease, many diabetic patients suffer from comorbid depressive symptoms.

Diabetes & Depressive symptoms

Diabetes, like most other chronic somatic diseases, increases the risk of depressive symptoms or depression (when we use the term 'depression', we mean both depressive symptoms and major depression), which has been identified as the second leading cause of disability worldwide (Ferrari et al., 2013). In comparison to people without a chronic disease, rates of depression are twice as high in diabetic patients, ranging from 6% to 43% (Ali et al., 2006; Anderson et al., 2001; Fisher et al., 2007; Roy & Lloyd, 2012).

Everyone experiences mood fluctuations from time to time; we all know the feeling of sadness or frustration. But normally, these feelings only last a couple of hours or days and take turns with happy and loving emotions. If negative feelings prevail by being long-lasting and intense, this might be an indication for depression. According to the Diagnostic and Statistical Manual of Mental Disorder version V (DSM-V), depression is mainly characterized by feelings of sadness and a lack of interest most of the day during the previous two weeks (American Psychiatric Association, 2013). In

addition, other common symptoms are: loss of energy, feelings of hopelessness or worthlessness, significant weight loss or gain, insomnia or excessive sleeping, suicidal ideation, and having problems concentrating. Depression affects feelings, thoughts, and behavior and interferes with daily life. Accordingly, it can influence how a person functions in everyday life and at its worst lead to premature death (World Health Organization, 2008). In addition, the burden of depression is intensified by its chronic course trajectory and many patients, once recovered from their symptoms, experience a relapse (Judd & Akiskal, 2000; Vittengl et al., 2007).

Patients who suffer from both, depression and diabetes, experience a multiple risk for leading an unhappy life and dying younger. They tend to have difficulties to adhere to doctors' medication, dietary, and exercise recommendations and show poorer physical performance (Ciechanowski et al., 2000; Ciechanowski et al., 2003). Furthermore, depressed patients with diabetes have higher numbers of behavioral risk factors as smoking and obesity (Katon et al., 2004). Knowledge about treatment possibilities of depression among diabetic patients is needed, as the combined debilitating effects do not only decrease the life quality for individuals and their families, but, from a societal viewpoint, reduce efficiency and burden the health care system (Egede & Ellis, 2010).

Cognitive Behavior Therapy

Psychological treatment has been found to be beneficial in reducing depressive symptoms and is preferred above antidepressant drugs by the majority of patients with diabetes (Dwight-Johnson et al., 2000). Cognitive behavior therapy (CBT) may be particularly promising (van der Feltz-Cornelis et al., 2010). As an active and problem focused type of psychotherapeutic treatment, CBT helps patients to deal with current depressive symptoms. CBT is based on the understanding that feelings, thoughts, and behavior are interconnected. Accordingly, it combines methods from cognitive and behavioral therapies. Cognitive methods include identifying and understanding dysfunctional emotions and thought patterns in order to ultimately adapt them into more positive or rational ones. The aim of behavioral techniques is to teach individuals skills to alter their maladaptive behavior and engage in more pleasant or satisfying activities (Beck et al., 1979; Beck, 2005). Thus, CBT affects (depressed) mood on two levels. By changing negative thinking and participating more often in enjoyable activities, individuals' view of life is assumed to become more positive. Consequently, CBT has been found effective for treating depression in individuals with and without a chronic somatic disease (Beltman et al., 2010; Butler et al., 2006).

Mindfulness-Based Cognitive Therapy

Another promising psychological treatment is Mindfulness-Based Cognitive Therapy (MBCT). In recent years, mindfulness-based treatments for depression have gained attention in clinical practice and in research. Originating from contemplative traditions such as Buddhism, mindfulness refers to being aware of the present moment by paying attention on purpose and without judgment (Kabat-Zinn, 1990). Developed in 1979, Mindfulness-Based Stress Reduction (MBSR) has the goal to reduce stress, pain, and illness in medical patients (Kabat-Zinn, 2003). Two decades later MBCT, a combination of mindfulness training and cognitive therapy, was created (Segal et al., 2002). Like in CBT, participants are educated about depression and the association between feelings, thoughts, and behavior. However, meditations such as the bodyscan, yoga, sitting meditation, or mindful walking form the basis of treatment sessions. In mindfulness meditation, the attention is purposefully directed towards the breath and other sensations in the body, upcoming thoughts and feelings, as well as to an open awareness to what arises from moment to moment. Mindfulness practice does not only emphasize awareness, but also encompasses acceptance and non-judgement of thoughts and feelings. Practitioners learn to face difficult thoughts and feelings rather than avoiding them, which enables them to deal with negative emotions more effectively. Accordingly, MBCT has been found effective in improving depression, also in patients with a chronic somatic disease (Carlson, 2012).

CBT and MBCT: related but different

CBT and MBCT are short-term interventions that focus on the immediate presence rather than the past and in both interventions participants are educated about the interconnectedness of feelings, thoughts, and behavior. The important distinction lies in the reaction to those patterns (see Figure 1). In CBT on the one hand, participants are encouraged to change behavior (by engaging in more enjoyable activities) as well as challenge negative thoughts (by replacing them with positive or neutral ones) to consequently experience more pleasant feelings. MBCT on the other hand, focuses not on changing thoughts and feelings, but on accepting them irrespective of their content. Participants' momentary awareness enables them to build a distance towards their own experiences, reflect on them, and make healthy decisions. This consequently can lead to a change in behavior.

Having distinct evidence-based treatments for depression in patients with diabetes can optimize psychological care. First, it enables patients to have a choice, which is important as preferences and attitudes towards an intervention can influence treatment outcome (Swift et al., 2011). Second, it increases the ability to offer a given

patient the best possible treatment, as one intervention could be advantageous above the other for certain subpopulations.

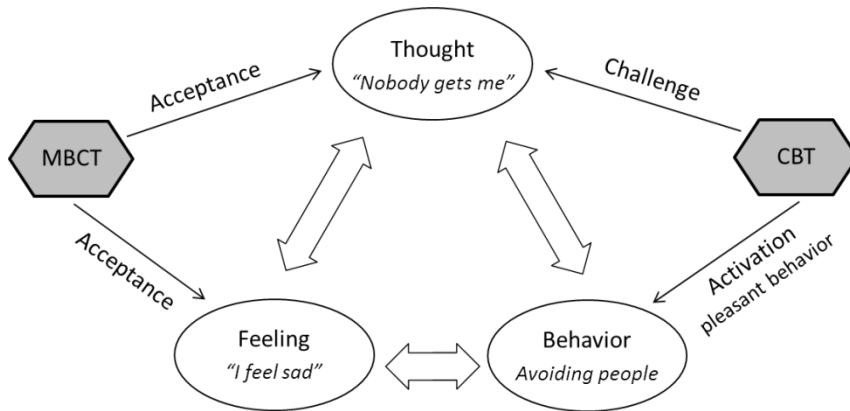


Figure 1. Connection between thoughts, feelings, and behavior and reactions to experiences.

Individual treatment format

CBT can be delivered in either individual or group format. Yet, individual CBT has been shown to be especially effective in patients with a somatic disease (Beltman et al., 2010). MBCT had been developed as a group intervention and its effectiveness has only been investigated and proven as a group format. Yet, from clinical practice we know that many therapists deliver MBCT also individually. This has several reasons: (1) not every patient wants to participate in a group and share personal information with others (Lang, 2005; Lau et al., 2012), (2) some patients find group enquiry destructive and not beneficial (Griffiths et al., 2009), and (3) it is not always feasible to offer a group program. Especially in hospital settings or in small clinical practices, it might take too long to fill up a group so that patients might need to wait for a long time. Currently, there are mindfulness trainers who deliver MBSR or MBCT individually, without empirical evidence to support the effectiveness of individual training. This warrants an evaluation of an individual version of MBCT.

Aims of the current thesis

This PhD thesis sets a step into identifying effective treatment by investigating the impact of psychological interventions for depressive symptoms in patients with diabetes mellitus type 1 and 2. Specifically, the following questions are considered:

1. What are the short- and long-term effects of individual CBT and MBCT on depressive symptoms and glycemic control in patients with diabetes?
2. Which patient factors influence response to CBT and MBCT?

Overview of the chapters

Each of the following chapters addresses one of the above mentioned questions with the aim of understanding how effective which therapy is for which patient in both the short- and long-term.

As diabetes poses a great burden on patients' lives, several studies have investigated the effectiveness of CBT for problematic diabetes (i.e., poor glycemic control or depressive symptoms). In CHAPTER 2 we discuss the current literature on cognitive-based therapies for poor glycemic control and depressive symptoms in a systematic review and meta-analysis.

MBCT seems to form a good alternative for CBT in treating depressive symptoms, yet it is unknown whether MBCT is also applicable as an individual treatment. In a pilot study we compared individual MBCT to a waiting-list control condition in 24 patients with diabetes and emotional distress. The changes in depressive symptoms, diabetes-related distress, and mindfulness are described in CHAPTER 3. In addition, information is given on the acceptability and feasibility of individual MBCT.

The Mood Enhancement Treatment Intervention Study (METIS), a randomized controlled trial about the effectiveness of MBCT and CBT in comparison with a waiting list control condition in patients with diabetes and co-morbid depressive symptoms, forms the basis of the main part of this thesis. The design of the study is presented in CHAPTER 4. In this randomized controlled trial, the effects of both CBT and MBCT on several psychological and medical outcome measures are considered as well as potential predictors. In CHAPTER 5, the immediate outcomes with respect to depressive symptoms, well-being, anxiety, diabetes-related distress, and glycemic

control are discussed. Following, CHAPTER 6 examines the long term effects of CBT and MBCT from baseline to one-year follow-up.

After examining the effectiveness of both interventions, a next important step is to investigate factors that influence response to CBT and MBCT. Personal characteristics of the individual, like demographics, disease-related characteristics, clinical factors, and personality are assumed to influence level of treatment efficacy. These factors can either generally predict treatment outcome (i.e., prognostic predictors), or indicate which treatment is most beneficial for a given patient (i.e., prescriptive predictors). In CHAPTER 7, these prognostic and prescriptive predictors are assessed.

In the general discussion in CHAPTER 8, the main findings of this thesis are summarized and related to current literature. Moreover, methodological considerations and avenues for future research are discussed.

